AMSTRAD
CPC 464, 664, 6128

THE MUSIC SYSTEM

USER MANUAL

If this product fails to load correctly, please return it, minus its packaging, to the address below where it will be replaced free of charge and your postage refunded. This does not affect your statutory rights.

RAINBIRD SOFTWARE
British Telecom
Wellington House
Upper St Martin's Lane
London WC2H 9DL

Now that you've discovered The Music System, you know what's musically possible on your Amstrad. If you want to take this knowledge further, into professional composition, songwriting and annotation, you'll need The Advanced Music System (AMS).

AMS is a complete, disc-based Music System with 2 extra modules: A Printer - enabling you to print out whole music files, complete with lyrics, as sheet music, and a Linker - making full length compositions possible by chaining together music files straight from the Editor.

To upgrade to AMS simply send your existing Music System (minus packaging) enclosing a cheque or P.O. for £14.00 (Cassette to AMS) or £10.00 (Disc to AMS) to the following address:

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Wellington House
Upper St. Marin's Lane
London WC2H 9DL

AMS will be available from April 1986 and your disc will be forwarded by return of post.

Contents

Introduction

The Music System is a sophisticated music program for creating, editing and playing music. It comes complete with a Song and Sound Library containing a variety of tunes and sounds to get you started right away. The Music System is the musicians equivalent of a word processor. Its power and versatility will become apparent as you follow through this guide with your Amstrad by your side!

Once the program is loaded there is no further access to the system cassette or disc. This can therefore be removed and replaced by a Library cassette or disc which is used to store tunes and sound sets. Both cassette and disc versions are identical except for the starting up instructions and loading and saving tunes. Where differences occur a cassette symbol means 'cassette users only' and a disc symbol 'disc users only'.

Three part musical compositions can be entered in two ways: through an extremely versatile Editor in written music format or via the on-screen Keyboard emulator. In both cases the notes appear directly on the treble and bass staves and may be played, scrolled, transposed and transformed using the fully comprehensive editing and composing facilities. Sounds may be created and edited using the pop up Synthesiser.

TMS is full of useful and interesting features, some of which may take a while to learn how to use. For the beginner there are the minimum of control keys to remember; many functions using easily accesssible pop up menus. For the more advanced user there are convenient 'short cuts' for instant editing. The system is very friendly and we do try hard not to let you get in a muddle. If you have a problem, be patient and consult the manual.

To make the most of The Music System you should connect the sound output from your Amstrad to a hifi system via the STERO or I/O socket on your microcomputer. Consult your Amstrad User Instructions for details.

Getting Started

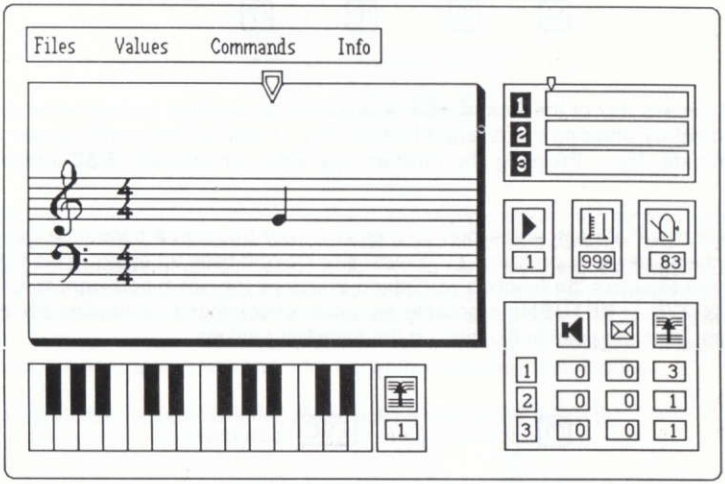
Before starting make sure that you have a spare data cassette or formatted data disc ready to save any tunes you create. Consult your Amstrad User Instructions for help on formatting discs.

Insert the TMS cassette with side A facing upwards. Press the **CTRL** key and the **small ENTER** key simultaneously. Then press PLAY on your datacorder. Then press **SPACE** to load. Note that **CTRL-small ENTER** means that you hold down the **CTRL** key and press the **small ENTER** key once.

Insert the system disc into the disc drive with side A facing upwards. Type **RUN 'TMS'** and press **ENTER**. The program will load and run automatically.

Introducing The Music System

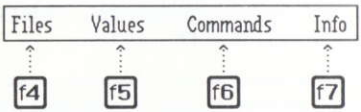
The screen consists of a number of different blocks which we often refer to as devices. The Command line, along the top, is used for all filing operations, for changing values such as key and time signatures, for accessing some commands and for looking at the status information on the current musical composition. The Command line functions are accessed directly by function keys **f4** to **f7**.



The Voice Monitor Window (VMW for short) which displays the notes, the metronome, the control device (the device at the bottom right of the screen) and the keyboard are arranged in a circuit. Only one of these devices can be used at a time. The current device is highlighted. For instance you could move to the metronome to change the tempo; move on to the control device to alter the octave range; to the keyboard to record a few bars and on to the VMW to edit the odd note. Press **SPACE** to move round in a clockwise direction. **CTRL-SPACE** to move in the opposite direction. The expression **CTRL-SPACE** means hold down the **CTRL** key and press **SPACE**.

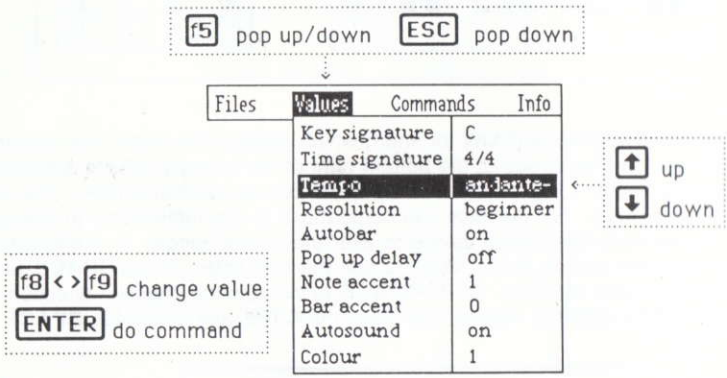
SPACE	move clockwise
CTRL SPACE	move anticlockwise

The barmeter, record and free space devices on the screen are not included in the circuit as they only display information. We will briefly look at each device before getting down to the business of composing music.



You can access any of the Command line functions at any time (except when playing or recording) by pressing the relevant function key. A pop up menu will appear under the Command line. Pressing the function key again or pressing **ESC** erases the menu.

You will notice that each of the pop up menus except Info has a horizontal bar which can be moved down by pressing ↓. Press ↑ to move it back up again. This highlight bar is used to select the function you intend to use or the value you want to change. Press **ENTER** (or **RETURN**) to activate an option or command. In Values the **f8** and **f9** function keys are used to flip through the parameter values.

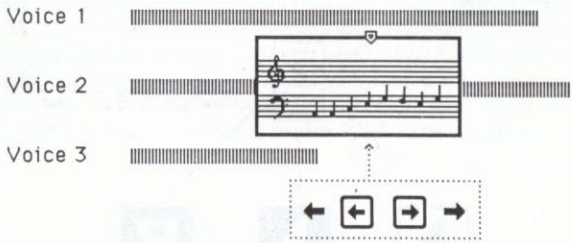


Let's leave the Command line until you need to use some of its facilities.

The Voice Monitor Window or VMW displays part of a tune for viewing and editing. It will also display the notes input from the piano keyboard as you record them. A tune can have up to three voices and the VMW shows a small part of one of these voices. The window can be flipped between voices by pressing **f1**, **f2** or **f3**. You can scroll the notes backwards and forwards through the window with ← and →. The number in the record device (to the right of the VMW) indicates which voice you are currently looking at.

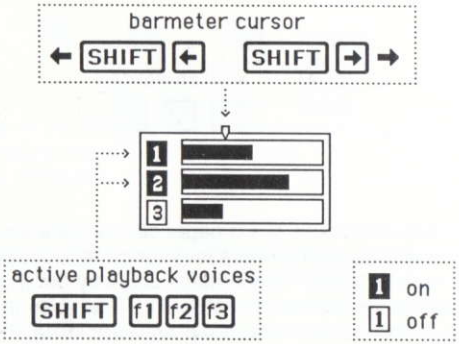
Notice that the VMW has what looks like a paper clip over the top edge. This is called the note cursor and marks the current note ie. your current position in the music from which you can play, record or edit. When notes scroll by the note cursor they sound. When flipping between voices the current note in the new voice is in the corresponding position in the music to the current note in the previous voice. You can therefore flip easily between voices knowing that the notes always 'line up'. The VMW also displays the appropriate key and time signatures selected from Values.

The diagram below illustrates the VMW looking into part of voice 2.

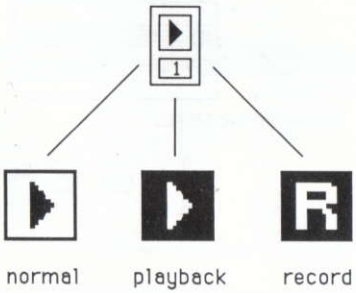


To the right of the VMW is the barmeter device (shown below). This gives a visual guide to the contents of each of the three voices. When music is recorded the bar extends across the device indicating the length of that voice relative to the others. The barmeter also has a tiny paperclip which we call the barmeter cursor. This shows you

where you are within a tune and moves left and right as you rewind and fast forward through a tune using **SHIFT-←** and **SHIFT-→**. The key pair **SHIFT-←** means hold down the **SHIFT** key and press **←**. The voice numbers on the left are highlighted (in inverse) when selected for playback. The **SHIFT-f1, f2** and **f3** key pairs are used to turn voices on or off. If none of the voice numbers are highlighted your tune will playback *very , very* quietly!

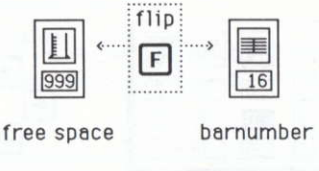


The three devices below the barmeter are record, free space and metronome. The record device indicates when you are recording from the piano keyboard or playing back a tune. In either of these modes you will not be able to move the highlight or access the Command line.



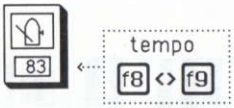
The number under the icon shows you the current voice being displayed on the VMW.

Free space shows you how many notes you can add to your tune before running out of space. It also takes into account the space you have used up for your notepad. Look at Info (**f7**) to see what the notepad size is. As you fill up the notespace the measuring cylinder fills up too ..... mind it doesn't overflow!

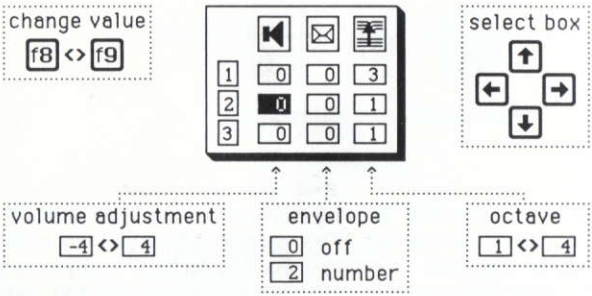


If you would rather know which bar is being displayed in the VMW press **F** to flip the device to show the current barnumber. This is especially useful when entering and editing tunes directly on the VMW. You can press **F** to flip back at any time to see how much room is left. Note that barnumber does not include repeats and counts bars in the same way as normal musical manuscript, whereas the barmeter indicates the actual duration of each voice including repeats. The barnumber might change as you switch between voices but the barmeter cursor will stay put.

The metronome device displays the tempo in crotchet beats per minute. You can change tempo from either the Values pop up where it is displayed in Italian notation or by highlighting the metronome device and using **f8** and **f9**. The metronome swing depends on both the tempo and time signature (also set in Values). In 3/4 and 4/4 time for instance the metronome beats in crotchets with one swing per crotchet beat. In 5/8 time each swing will be one quaver in length and in 12/16 time each swing will be one semiquaver long. Conversely in 2/2 time the metronome will swing slower, each swing being a minim long. Since the metronome is mostly used when recording from the piano keyboard this allows you to easily record in any time signature ..... even 7/16!

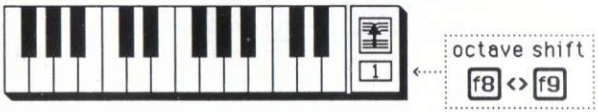


The control device at the bottom right of the screen controls the playback of music files. You can set the volume adjustment, envelope and octave range *of each voice* before playback or recording. You can change any of these settings by first highlighting the control device and then using the arrow keys to select one of the number boxes. Press **f8** and **f9** to change the value in the box.



If the volume adjustment for each voice is set to 0 then all voices will play at the same volume. The master volume control is at the back or side of your microcomputer. If you want to feature a particular voice, increase it's volume adjustment; if it's too loud decrease it. The envelope value for each voice has no effect if set to 0 - the envelope numbers being set in the tune. Any other number overrides any envelopes set in the voice. The envelope settings can also affect the sound from the piano keyboard so, if in doubt, always keep them on zero. Each voice has four octave ranges. With octave set to 3 the pitch of the notes on the VMW is correct as written. Selecting another will transpose the voice up or down.

The piano keyboard (quite easy to spot isn't it?) responds to the top two rows of Q-W-E-R-T-Y keys on your Amstrad. The piano keyboard only plays when highlighted.



As a key is pressed, a note sounds and the note name according to the key signature is displayed eg. note B in the key of Bb is shown as a B♮ (natural) and note Bb (a black note) is shown as a B because there is already a flat in the key signature. This is tremendous help for those of us who cannot remember which notes belong in which keys!

The keyboard also has its own octave shift built in. The three keyboard octave ranges cover the entire pitch range on the VMW.

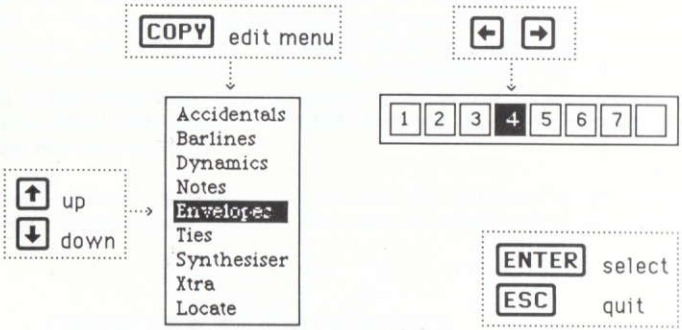
As well as being able to move the highlight to different devices using **SPACE** and **CTRL-SPACE** you can also move directly using the following keys.

Making Music

The Music System is a powerful composing tool with many features. Notes may be played directly from the piano keyboard or placed directly on the staves. We'll start with the piano keyboard and after you've discovered the delights of 'tinkling the ivories' and recording the odd musical masterpiece you can move on to entering and editing notes directly on the VMW. But before that you might like to change the colour scheme! Press **f5** to pop up Values and use ↓ to move the highlight down to *Colour* . Press **f9** to move through the colour options and **f8** to move back again. On monochrome monitors you can choose a 'colour' that gives you the right contrast. Press **ESC** to pop Values down again.

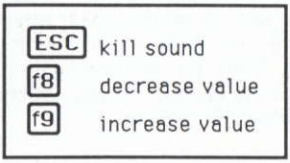
Highlight the piano keyboard (move round with **SPACE**). Press a key on the second row of the computer keyboard (starting at **TAB**). You should be producing a sound ..... if not check the volume control on your microcomputer. This row of keys represent the white notes on a piano. The row above are the black notes. Notice that there are gaps in the black keys on a piano keyboard so that not all the keys on the top row will make a sound.

The keyboard is really a recording device for entering notes on the VMW. It takes it's envelope, octave and dynamic settings from the note at the cursor position on the VMW (the note under the paper clip). This makes recording really easy. To change the sound of the keyboard we must change the envelope setting of this note. Press **SPACE** to highlight the VMW and **COPY** to pop up the edit menu.



Select *Envelope* and press **ENTER**. The envelope menu pops up. This allows you to add an envelope setting to that note. At the beginning of a voice a note is automatically given an envelope setting of 1 . Press → to move onto 2 and press **ENTER** to confirm your selection.You have now set your first envelope marker. It actually means that all notes following the marker will have this same sound ..... but more about that later. There are short cuts to entering note parameters such as envelopes but these involve remembering more keys. See the section '.... and now the quick method' for details.

Press **CTRL-SPACE** to move back to the piano keyboard and try tinkling again. You should have a different sound! There are seven envelope sounds to choose from ..... try them all! If you want to silence the keyboard press **ESC**. To change the pitch range of the keyboard press **f8** or **f9**. The octave device number will change. These two keys are always used to change values throughout TMS.



To produce even lower or higher sounds you need to change the octave setting in the control device. **SPACE** round to highlight the control device (in the bottom right hand corner) and select the top right hand box using the arrow keys. This controls the octave setting for voice 1. Look at the record device next to the VMW to make sure that the note on the VMW is actually in voice 1. If not, press **f1** to display voice 1. Use **f8** and **f9** again to change the octave setting and **SPACE** back to the keyboard.

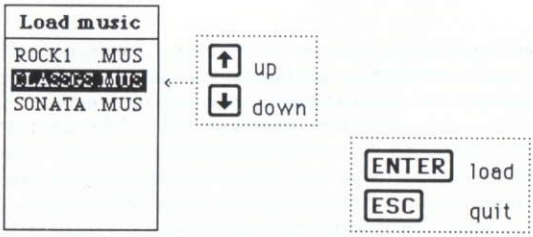
You will now be able to play even lower or higher than before. Now try changing the tempo. **SPACE** round to the metronome (it's easy to spot this device) and use **f8** and **f9** again to change tempo. The metronome will be beating in crotchet time assuming that the time signature is still set to 4/4. Return to the keyboard for another tinkle. You should be getting quite expert at moving around the screen and changing values by now. You will find that most of the other controls are very similar.

Loading a Tune

The Song and Sound library can be found after the TMS program on the cassette and also on disc. It contains a number of example tunes demonstrating some of the capabilities of TMS. Insert the system cassette or disc and access the Files option by pressing **f4**. The separate instructions for cassette and disc users are given below.

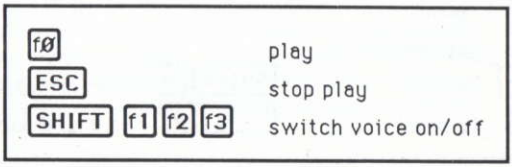
Wind your cassette to the end of the program and select the *Load* option by highlighting and pressing **ENTER.** Press PLAY on your datacorder and a music filename should soon appear in the Library window. A pop up will appear over the keyboard giving you the option of loading this file. Press **Y** to load or **N** to continue searching for the next file. The pop up will disappear when a file has been sucessfully loaded. You are searching for one of the music files on the cassette which come straight after the main program. They are identified by their .MUS file extension (that is computer jargon for the bit after the name!). If you get stuck look at the Files section further on and the list of Library files on page 49.

Select the *Load* option by highlighting and pressing **ENTER**. The load pop up will then display the names of the music and sound files which may be loaded. Move the highlight to the file you want to load and press **ENTER**. Note that music files always end in .MUS (we call this a file extension) to identify them.



Any music file already stored in memory will be overwritten when a new file is loaded. The tempo, key signature etc. are all reset as well. Look at the section on Files (page 35) if you have any difficulty.

When the music file has loaded press **f7** for Info. This displays information about the current file including the file name. Press **f7** to erase the Info window. To play the tune press **f0**. To stop press **ESC**. You can turn voices on and off even while the tune is playing by pressing **SHIFT** and the voice function key eg. press **SHIFT-f1** to turn off voice 1 and press it again to turn it back on.



Notice that the playback indicators in the barmeter highlight the voices which are selected for playback.

Recording

Now that you have heard some examples of what can be composed it's about time you tried recording yourself! Firstly you will need to delete any music already in memory. Access Commands (**f6**), move the highlight down to *Clear music* and press **ENTER** to delete all the notes. A confirm pop up will ask if you really want to clear the music. Press **Y** to confirm or **N** to quit. Check the record device to make sure you are in voice 1. If not press **f1.** You can change the tempo, key and time signatures from Values (**f5**) before you start recording (see page 4). You will probably want to set the envelope sound as well. To record you must highlight the piano keyboard. Press **COPY** to record and away you go. TMS waits for you to press a key before it actually starts recording. Pressing a piano keyboard key starts you off with a real note; any other key such as **SPACE** starts you off with a rest. Notice how the free space decreases even if you are not playing (rests are being put in automatically) ..... and the record device is highlighting the record icon. Some of the notes on the VMW will appear as tied pairs and bar lines are inserted automatically according to the time signature. Press **ESC** to stop recording. Rewind to the beginning by pressing **SHIFT-**.... and play back your masterpiece with **f0.** A quicker way to move to the beginning or end of a voice is by using **CTRL-←** and **CTRL-→** .

f1 f2 f3	switch voice		
COPY	record		
ESC	stop recording		
SHIFT ←	rewind	SHIFT →	fast forward
CTRL ←	to start	CTRL →	to end of voice

You can move to any point in the voice and play. Watch the barmeter cursor to see where you are. It is quite a good idea to try recording at a slow tempo to start with. You can easily speed it up for playback. If you select too fast a tempo TMS may reset it to a slower tempo when you start to record. Remember that the metronome beats according to the time signature setting. If you are playing in 4/16 time the metronome will beat every semiquaver!

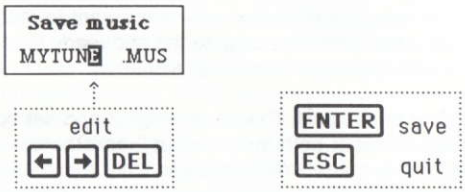
Change to voice 2. Because there are no notes stored the barmeter cursor moves to the beginning of the tune. Set the envelope for the first note in voice 2 ..... remember to move to the VMW before pressing **COPY**. You could also change the octave for voice 2 in the control device. Go back to the keyboard and start recording again. Voice 1 will play back as well so try and keep in time! You can then rewind and play voices 1 and 2 back together ..... great? If you don't like your first attempt rewind to the beginning or to wherever it went wrong and press **COPY** to over-record the whole or part of the voice. A pop up will ask you to confirm that you really want to record over part of the voice. It will wipe out all notes from the cursor to the end ready to start recording again. You can always record onto the end of a voice at any time.

It's now time to attempt a third track! Switch to voice 3 and set up a new instrument sound. You can turn off either or both the previous tracks before you record this one ..... you might like to add a rhythm pattern using only the metronome as a guide. Record another track and listen to the final masterpiece ..... perhaps not Vangelis, but after a little more practice .....? Remember that you can turn any of the voices on or off as it's playing back. You can also change the tempo and the octave setting for each voice individually before playing back.

You may have noticed that the keyboard does not allow you to play notes shorter than quavers whatever the tempo or time signature. This is so that your music will consist of proper notes and look reasonably tidy on the staves. The shortest note you can record is dictated by the *Resolution*. Pop up Values and change *Resolution* to *beginner* . The shortest note you can play is now a crotchet. This is especially appropriate for complete novices at the keyboard. After you have gained some experience you might like to try *expert* with a shortest note duration of a semiquaver. You will then be able to play a lot more notes in a beat. Each resolution has a maximum recording tempo. *Expert* mode has a slower maximum tempo than *beginner*. Also *beginner* and *average* modes will not be allowed for certain time signatures.

Saving a Tune

Select Files (**f4**) and move the highlight to *Save* . Press **ENTER** and another pop up will appear showing the music file name. You can change this by overtyping and/or deleting. Use ← and → to move the cursor and **DEL** to delete letters.

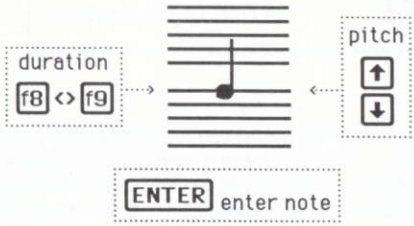


Make sure that you have a data cassette in the datacorder or formatted data disc in the drive and press **ENTER** when ready. On cassette you will also need to press RECORD and PLAY. When saved, pop up Info to see that the music filename has been changed to the new name. Next time you save the file (after a few amendments perhaps) this filename will automatically appear. If you don't want to change it just press **ENTER**. On disc systems you will be prompted if you are about to overwrite an existing file.

Entering and Playing Notes

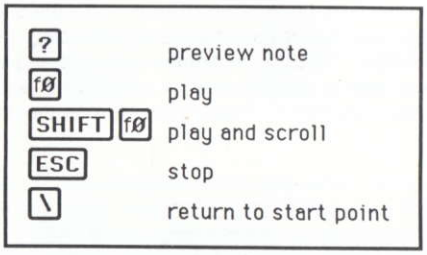
Instead of recording voices directly from the piano keyboard, notes may be entered directly on the staves. Of course you could edit keyboard tunes or use both facilities to create a tune. For instance, you might like to enter a rhythm or 'click' track using the edit facilties and add a top line from the keyboard.

If there are notes already in memory delete them by accessing Commands: *Clear music*. The free space should now read 999 and the barmeter will be empty. Make sure that the VMW is highlighted so that you can enter and edit some music. With an empty voice the note shown on the VMW will be a 'null' note since it has not yet been stored in memory. The note cursor (looking like a paper clip) is empty. Press **ENTER** to enter this note in memory. Now you have one real note and another null note at the end of the voice. Move back to the first note by pressing ← and the paper clip will be filled in showing that it is really there! Press → to move to the end again.



Any note may be edited; using ↑ and ↓ to select the pitch and **f8** and **f9** for the duration. Alternatively you can pop up the edit menu (press **COPY**) to select the note duration from *Notes*. The sound of the note is determined by its envelope setting. Pop up the edit menu and select *Envelopes* to change the setting if necessary. All following notes in this voice will have the same sound unless you change the envelope setting later on. It might be useful to press **?** to preview the note before entering it. For lefthanded people the alternative key **Z** may be used. Enter a few more notes on the stave, scroll back to the beginning and press **f0** to play. Your masterpiece will play back!

Now for the nice part.....press **SHIFT-f0** and the notes will play *and* scroll before your eyes. You can stop playing by pressing **ESC** as usual. You can play and scroll any number of voices at once from any note. Only those voices which are turned on will be displayed so you only see those notes which are actually playing. Of course, if you turn off all the voices there will not be a lot going on! Unlike play mode you cannot turn the voices on or off while they are scrolling. Also, playing and scrolling leaves you further along the tune. To return to where you started from press \. This can also be used to return to where you started recording from.



As more notes are added barlines appear automatically according to the time signature selected in Values. TMS will try and split a note it cannot fit exactly into the bar and tie it across the barline. If this is impossible then the warning message 'Can't split note' appears. Press **SPACE** and either change the note duration and try again or, if you really want an odd-sized bar, put in a barline yourself. To do this select *Barlines* from the edit menu and choose the single barline option. You can also turn off the autobar facility from Values and place barlines where you like.

Having entered notes in one voice switch to another. You will be back at the beginning again if there are no notes in the voice. Add a few notes and switch backwards and forwards between the two voices to see how the parts line up. If you press **SHIFT-f0** both parts are played and scrolled together. When the music stops you will return to the last note played in the voice you were originally in. If this voice is shorter than one of the others you might not end up at the end of your musical masterpiece! To play and scroll only the voice you are currently editing switch off the other with **SHIFT-f1,f2 or f3**. Keep an eye on the playback indicators in the barmeter device to see what's on or off.

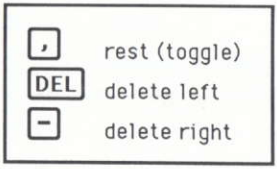
These are lots more editing facilities and 'goodies' to use on the VMW and you'll be introduced to some more of these in a moment. Just a short word about the control device lurking in the bottom right of the screen. This controls the playback of any tune as well as influencing the sound mode by the piano keyboard. Highlight the device and use the cursor keys to select the value you want to change. You can bring a voice to the fore by increasing its volume adjustment or fade it into the background by decreasing its volume. You can play the tune from this device (or anywhere else on the screen come to that) to practice getting the settings right. The envelope number will normally be set at zero so that the settings in the music will be used. However you can practice using different envelopes for different voices to see how they sound. If in doubt leave the envelope override settings on zero. We have used the voice octave settings to change the pitch range of the piano keyboard. You can also alter the octave range of any music in memory (called Transposition) by increasing or decreasing these values. Normally your bass guitar will need a lower setting than your soprano sax!

More on Editing

Rests can be inserted anywhere in your tune. Press , (comma) to turn a note into a rest and vica versa. This is called 'toggling' because you can switch backwards and forwards. Tied notes cannot be switched to a rest.

Notes can be deleted either forwards or backwards. Press **DEL** to delete the note *to the left of the cursor.* If you hold down the **DEL** key all notes will be cleared to the start of the voice. To delete the current note at the cursor press – : All notes to the right of the cursor will be 'sucked in' and deleted.

Press + to insert a note within a voice. The extra note will be identical to the current note. You can then change the pitch, duration etc. in the normal way. Note that the bar you are in might not now contain the correct number of beats.



Dotted notes can be selected in the usual way using **f8** and **f9** to change duration. The alternative method (which is rather sensible really) is to press . (full stop). Press . again to remove the dot. For musical beginners a dot on a note increases its duration by half as much again. Again, this facility might leave you with a bar of incorrect length if used to edit notes within a tune. You can always use the Command:*Check barlines* to see if your bars are all the correct length.

The note stem will flip at a fixed point as you move a note up or down the stave. If you want to change the direction of the note stem simply press ↑ . This can make 3 part scrolling music that much prettier!

The following facilities in this and the next two sections are available from the edit menu. We have already used *Envelopes* to change the sound of a note. Press **COPY** to pop up the menu from the VMW. Note that if you are in the piano keyboard device you will start recording instead! For the more experienced user there is a much quicker method of accessing these edit facilities and their menus. See '... and now the quick method' for details.

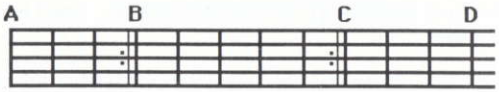
Accidentals can be added to the current note by popping up the accidentals menu and selecting the relevant one. Notes are automatically put in the correct key according to the selected key signature so there is no need to put in sharps and flats where they are already shown in the key signature. In fact if there is already a sharp in the key signature another sharp (#) will have no effect unless, of course, that note has previously been given a ♮ (natural) for instance in the same bar. To raise the pitch of a note that is already sharp in the key signature by a semitone use in double sharp symbol (𝄪) Conversely use the double flat symbol (𝄫) to flatten a note that already has a flat associated with it. Music is entered in proper musical notation with the usual convention of only showing accidentals once in a bar. If a particular note, say C is made sharp (C#) any further C's at that pitch will be assumed sharp for the rest of that bar unless cancelled by a natural (♮) or other accidental. Don't worry, this is *exactly* what normal music does!

Ties can be put anywhere in your tune that makes sense. You can tie the current note *forwards* to the note on the right or *backwards* to the note on the left. You cannot tie across repeat bars, to a note that is already tied or to a null note at the end of the voice. Tied notes have to be at the same pitch. TMS will always make the pitch of the second note the same as the first so watch out if you are tying backwards. Select the blank option to cancel the tie. When you are playing and scrolling any ties are removed from view on the VMW ..... don't worry they haven't been lost and the tune plays just as though they are there.

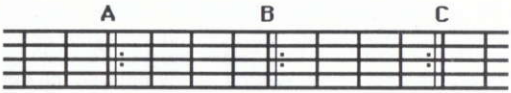
More on Composing

You have already met the autobarline facility which is available when entering notes in the VMW. Of course, when you are playing from the piano keyboard, barlines are always entered automatically according to the time signature. When you start recording a barline is inserted before your first note (unless you are at the beginning of a voice when its not needed). You therefore have to record *from the beginning of a new bar.*

To enter your own barlines and repeat symbols access *Barlines* from the edit menu. Use the blank box to remove a barline. Barline symbols are inserted to the right of the current note or rest. Consequently to delete a barline it must be just to the right of the note cursor. When you delete a note any barline attached to it is deleted as well. There are no restrictions on the use of barlines in your music, but unusual positioning of repeat symbols may not produce what you expect. Repeats cannot be rested. However, the tune will not stop playing whatever you enter in the way of repeats, first and second time bars. Here are some examples of what will happen:



plays A-B, A-B, B-C, B-C, C-D



plays A-B, A-B, B-C, B-C

Note that the symbol at B acts as a 𝄆𝄇 where necessary

The first time bar symbol makes the start of a first time bar. In fact, there can be any number of bars before the end of repeat symbol. If you forget to put in the repeat symbol it will conveniently be ignored. The second time bar symbol is normally used to mark the end of a first time bar.

TMS keeps a note on whether you are first or second time through a repeat section. You can often see this from the position of the barmeter cursor which counts each voice in expanded mode. Try entering an end of repeat symbol towards the end of a voice and scroll forwards and backwards across the repeat symbol. Note how the barmeter cursor jumps showing that the second time through the repeat section has been missed out. If you scroll *into* a repeat section TMS always puts you first time through. However if you have entered from another voice then you could quite possibly be second time through. In all cases TMS knows exactly where you are in relation to the other voices, so you don't have to worry.

Dynamics can be selected from the edit menu. Each voice has its dynamic settings so it is important to put dynamics in all three voices if you want a general change in volume at a particular point in a tune. Remember that switching voices always gives you the right point in the other voices.

Dynamic markings are very easy to use since they work in exactly the same way as in written sheet music. *pp* is the quietest and *ff* is the loudest. Without any dynamics at all a voice will play back at a medium volume level called *mf*. To increase the volume at any point insert an *f* or *ff*. This new volume will continued until you change it again with a new dynamic marking. Therefore by just putting one dynamic as the first note of a voice you can change the volume of all the notes in a voice. Dynamics can be edited or deleted by reselecting the dynamics menu. There are no restriction on the use of dynamics in a tune although the following points should be borne in mind:-

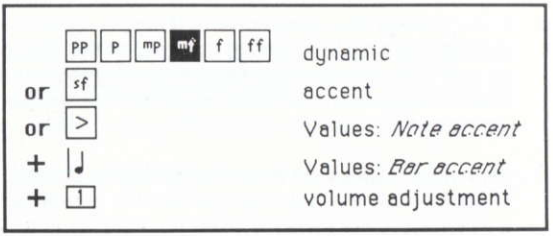
Repeat sections: If you change the dynamic level during a repeat section remember to put the appropriate starting dynamic on the first note of the section so that TMS can start the second time through at the correct level. This is always done in sheet music so that the performer does not get caught out either!

Voice volume: The voice volumes set in the control device change the base volume of each voice. Each unit is equivalent to one dynamic level. Hence a voice set to the dynamic level *mp* will play at an actual volume of *pp* if its volume adjustment is set to -2 or at *ff* with its volume adjustment set to 3! However you can play with volumes well above *ff* and below *pp*. It is best to think of the volume adjustment

as an additional control for bringing a voice forward or making it quiet ... a type of volume balance between the voices.

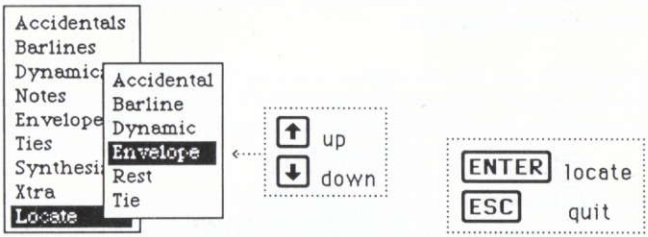
The really observant users will have noticed the two extra dynamic markings at the end of the menu. These behave differently because they only change the volume of the note with which they are associated. The sforzando dynamic (*sf*) accents the note by a certain set amount. It actually means 'with a sudden accent'. The note accent (>) is a variable form of sforzando and is particularly useful in rock, reggae and latin music for instance where you want to emphasise the rhythm throughout the tune. You can change the amount of accent in Values:*Note accent.*

So now you have complete and easy control over the dynamics in your composition. But there is still one more dynamic control we haven't used yet. *Bar accent* can be set in Values to provide a very convenient method of accenting the first note in each bar in every voice. The larger the number the greater the accent. This is not shown on the VMW since it can be used together with the other dynamics. We have gone to great lengths to design a nice flexible method for changing the dynamics of a musical composition; please experiment and use it. We'll guarantee that it will greatly enhance any piece of music. So don't abandon your tune after entering all 999 notes - add some dynamic! The range of facilites are summarised below:-



You have already used envelopes to change the sound of the piano keyboard. There are 7 different sound envelopes to choose from in each sound set. The second sound set can be swapped in by accessing Commands:*Swap sound sets.* Envelope settings behave in exactly the same way as the dynamics. You can change envelope anywhere along a voice; the new envelope number showing up beside the note. This envelope will then be in force until the next change in setting.

Watch out for repeat sections (as with dynamics) and remember that if you delete a note with an envelope setting attached to it the envelope change will also disappear. New sound sets can be loaded in to replace the current set of envelopes or you can experiment with your own sonic creations using the sound Synthesiser (page 29).

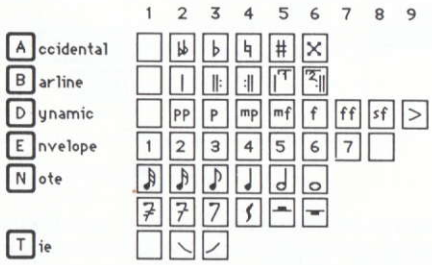


It is often useful to be able to find the actual envelope and dynamic settings within a voice. Pop up the edit menu and select *Locate.* A second window displays the items that may be located. To find the next envelope setting for instance select *Envelopes.* The note cursor will move to the next note it can find in that voice with an envelope number. If there isn't one the note cursor will not move. The other options work in the same way except *Barlines* which locates the note after the barline and hence the first note of the next bar.

... and now the Quick Method

So far you have accessed the edit menu options such as *Envelopes* by pressing **COPY** and **ENTER** while on the VMW. Once you are used to these facilities you will want to access them more quickly. Each option name starts with a different capital letter (hence *Xtra* !). Make sure you are on the VMW and press **A.** The *Accidentals* menu will immediately appear. You can then select a new accidental and press **ENTER** as usual. The other options work in exactly the same way. Note that options which are unavailable from the edit menu are still not available when you press their letter key. In which case nothing will appear to happen.

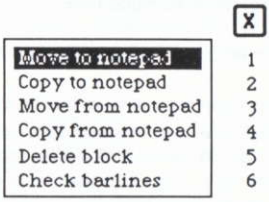
Once you are used to this method you can try the REALLY quick method of adding accidentals, envelopes etc. Pop up Values and note that *Pop up delay* is set to zero. This means that as soon as you press **B**, for instance, the *Barline* menu appears. Set the delay to 2 seconds and try again. The menu will not appear for 2 seconds this time. During this delay period you can press the number key corresponding to the value you want. If you can't remember the number either wait until the pop up appears or press any other (non-number) key to force the pop up. The diagram below gives all the letter and number codes for each operation.



For instance to set the current note to envelope number 2; press **E** followed by **2**. Easy isn't it? The other options require a little more memory work but you will soon find that the common operations soon become second nature to you.

Xtra Editing Commands

The *Xtra* Commands make editing that much easier. For instance they are used for moving sections of music from one voice to another via the notepad, for deleting blocks of notes and checking barlines. They all involve blocks of notes which may be just a bar or even a whole voice. Pop up the edit menu and select *Xtra*. The *Xtra* menu will appear. Alternatively you could press **X.**



The menu does not appear if you are unable to use any of the commands. For instance there must be at least 2 *real* notes following the note cursor or there must be notes already stored in the notepad. In some cases only a number of the options will not be available; these are displayed in grey *italic* text.

To use this facility, first move the note cursor to the beginning of the block and select *Xtra*. After selecting an option (press **ENTER**) a message pop up appears asking you to move to the end of the block you want to copy/delete/move. Either use ➔ or **SHIFT-**➔ to scroll through the voice or **CTRL-**➔ to move directly to the end of the voice. Press **ENTER** and the operation will go ahead.

The first four options involve the notepad. This is a section of the note storage area. The notepad size (given in Info) is only limited by the total number of notes already stored in voices 1...3. The notepad may be saved on disc or cassette at any time or a new notepad file loaded to replace it (see Files). The notepad cannot be directly added to; only replaced or deleted.

Move to notepad moves all the notes in the block to the notepad replacing any previous contents in the notepad. *Copy to notepad* also leaves the notes in the voice intact. Because of this, the command will only be successful if there is enough free space in the note storage area.

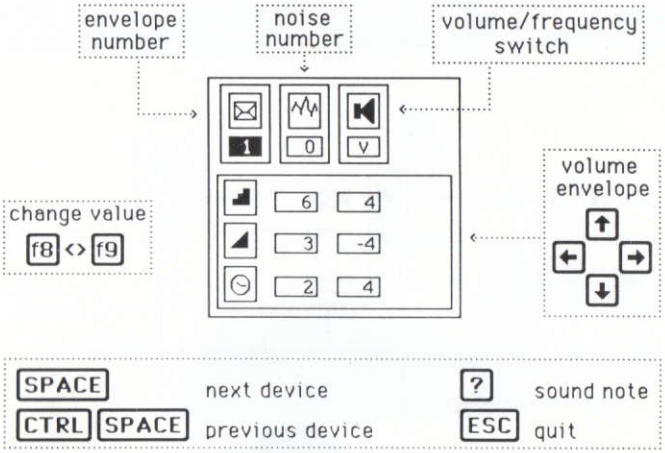
Move from notepad empties the contents of the notepad into the voice to the left of the current note. The whole notepad is therefore inserted in front of the note cursor. *Copy from notepad* leaves the notepad intact but again is limited to the available free space. You can access Commands:*Clear notepad* to delete the notepad. This gives you the maximum free space for your composition.

Delete block deletes all the notes in the block. This is irreversible!

Check barlines will check that barlines are in the correct positions according to the time signature. You can check a whole voice or any section of it. If a bar is not the correct duration the error pop up 'Bar too short' or 'Bar too long' is displayed. The note cursor is left on the last correct note. You can then sort out the error by hand. If there are no errors a 'Bars ok' pop up is displayed.

The Synthesiser

The Synthesiser provides a means of creating and editing the sound set. Each sound is controlled by a set of parameters collectively called an envelope. This is why we often refer to the sounds by their envelope number or envelope setting. The envelope parameters consist of separate volume and pitch envelopes and a noise number. You can change the volume envelope for instance to increase the attack of a note. The pitch envelope can be set to produce vibrato or even more exotic effects. The noise parameter adds a certain percussive effect to the sound. There are 7 resident envelopes in the current sound set, with an alternative selection in sound set 2. These envelopes cannot be edited or used. However, the whole set may be swapped in completely or individual envelopes copied or swapped with the current envelopes in sound set 1.



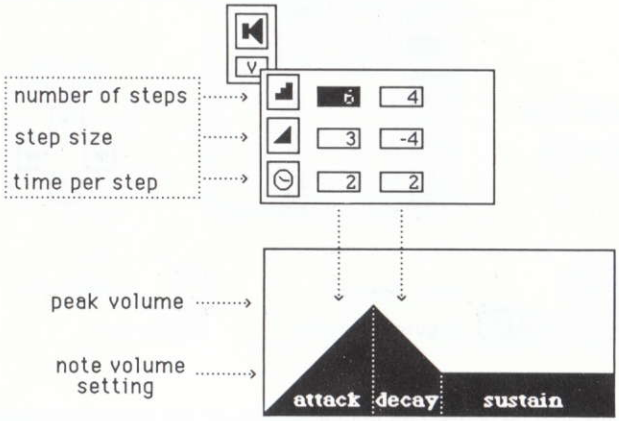
The Synthesiser can be popped up from anywhere on the screen by pressing **S.** The alternative method of selecting Synthesiser from the edit menu can also be used. You can erase the Synthesiser by pressing **ESC.** The pop up contains a number of different devices; envelope number, noise number, volume/pitch switch and the volume or pitch shape. When pitch is selected an additional repeat device is also displayed. The devices are arranged in a circular manner. Only the highlighted device can be edited. Pressing **SPACE** moves clockwise to the next device; **CTRL-SPACE**

in the opposite direction just like on the main screen.

The pitch, duration, volume and envelope number are also set from the current note on the VMW. If you want to create a long sound, set the note duration to a minim for instance before popping up the Synthesiser. You can easily pop the Synthesiser down, change the current note parameters and pop it up again. You can, of course, change the envelope number from the Synthesiser.

The envelope number can be set between 1 and 7 using the normal **f8** and **f9** keys. The envelope parameters are updated as you change this number. Press **?** to sound the envelope. Alternatively the **Z** key may also be used if you'd rather exercise your left hand!

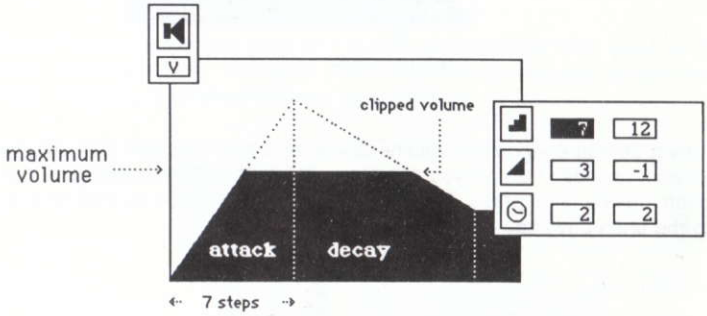
The noise number can be set between 0 and 31 to give different percussive effects. The next device in the circuit is used to switch between displaying the individual volume or pitch envelopes. Press **f9** to switch to pitch and **f8** to switch back to volume.



The volume envelope has six parameters; the first column determines the attack of the note, the second column sets the decay of the note. The sustain section is automatically set by the actual volume of the note. You have probably experimented with note volumes by now using dynamics and volume adjustment. The diagram

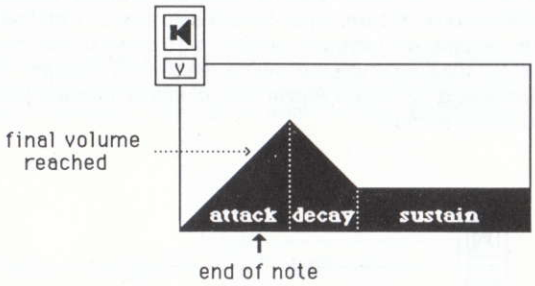
above shows the shape of a typical volume envelope, with the attack, decay and sustain sections. You have control over the first two sections by changing the rates of attack and decay. You may think of these as being the slope of the volume envelope. However it is probably better to experiment with different numbers and listen to the effects.

The three parameter types governing the attack section are number of steps, step size and time per step. The number of steps governs the length of the attack section. The step size can vary from 0 to 15. This is measured in volume units and represents the slope of the attack section. The greater the step size the greater the attack. The maximum volume is 15. The initial volume depends on note volume setting. Eg. starting from an initial volume of zero, if you have a step size of 1 and set the number of steps to 15 then the volume will increase steadily in 15 steps to the maximum volume. With a step size of 3, maximum volume will be reached in 5 steps. If the maximum volume is exceeded during the attack phase the volume is 'clipped' and remains at 15 until the end of the attack section.

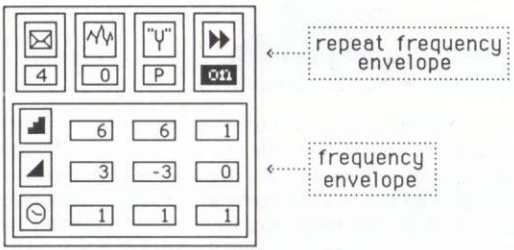


The decay section operates in a similar way except that the step size can only be negative. If the peak volume is less than 15 the volume will begin to decrease at the start of the decay section. If the volume has been clipped (as in the diagram above) there will be a delay until the volume starts to decrease. Note that if your attack step size and number of steps are large you will find that altering the decay parameters makes no difference at all. This is because the volume is still being clipped to the

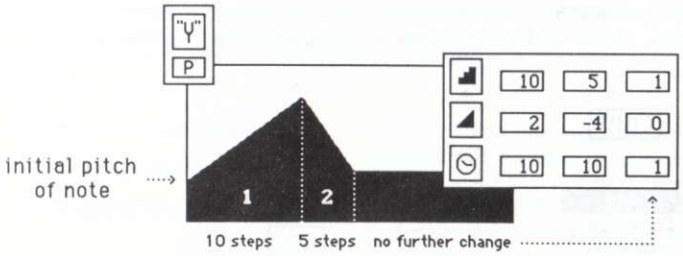
maximum volume. If you want nicely shaped envelopes it is important to use small numbers. The sustain volume level is determined by the actual volume of the note. If the note is being played at a high volume, the volume envelope will appear to have less effect than a note played at low volume. The time per step parameter can be used to change the length of time taken for each of the attack and decay sections. The actual duration of these sections also depend on the number of steps as well. For instance if you want to 'slow down' a volume envelope to create longer attack and decay sections just increase the time parameters. With large time values you might find that the note actually ends before, say, the end of the attack section.



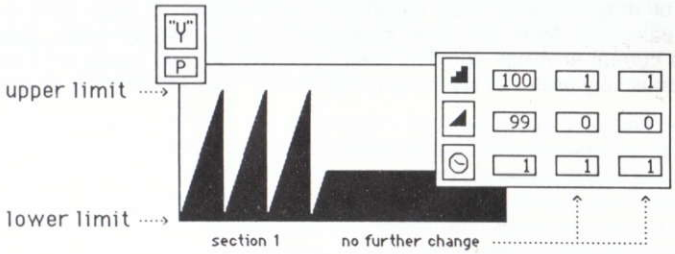
Besides being able to change the volume shape of a note you can also vary the pitch of the note as it sounds. For this you need to switch to the pitch envelope. Move to the volume/pitch device and press **f9**. The tuning fork icon shows that you are now displaying the pitch envelope parameters.



Notice that there is an extra repeat icon which allows you to repeat the pitch pattern ad infinition (until the note ends!). There are three independent sections which may be used to create a pitch pattern. Each one is specified by the same three parameters used in the volume envelope; steps, step size and time per step. Each section follows on from the next. A section is ignored if the steps, step size and time per step parameters are set to 1, 0 and 1 respectively. These are the minimum values.



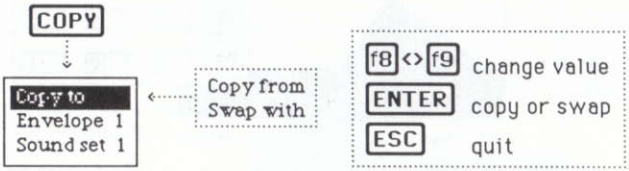
If the pitch reaches the upper pitch limit then it automatically folds down to the lowest pitch limit and vice versa. The pitch then continues to increase or decrease at the same rate. This effect is called foldover or wraparound.



Changing the pitch up and down rapidly produces a vibrato effect. This can be slowed down by increasing the time per step for each section. A slow change in pitch gives a

glissando effect. Fairly complex pitch patterns can be produced using all three sections. With the repeat device on, the whole sequence of pitch sections will be repeated continuously until the end of the note. Again a section is ignored if the steps, step size and time per step parameters are set to 1, 0 and 1 respectively. Hence, patterns consisting of 1, 2 or 3 pitch sections can be repeated.

The best way of finding out what sounds are possible is to experiment with different numbers, pressing **?** to hear each sound. To help you make up your own sound sets, possibly using envelopes from other sets, the Synthesiser includes its own copy and swap facilities. Press **COPY** and a pop up will appear over the keyboard.



The three options *Copy to, Copy from* and *Swap with* can be selected on the top line. The envelope number and Sound Set number can be selected below this. *Copy to* allows you to copy the current envelope parameters (which are always in sound set 1) **to** any other envelope in either sound set 1 or sound set 2. *Copy from* is used to copy the parameter **from** any other envelope to the current envelope. *Swap with* swaps the current envelope **with** the specified envelope from sound set 1 or 2. The swap option is very useful for rearranging the order of your envelopes in sound set 1.

The Command Line

The Command line is used for all filing operations, to set up user values and to access commands and status information. You have been introduced already to simple loading and saving operations and have used Values and Commands. This section provides details on all the available options.

Files **f4**

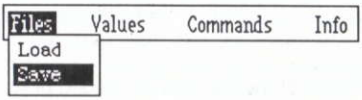
There are three different types of file that can be loaded or saved from TMS.

.MUS	music file	three voice tunes containing up to 999 notes with an associated sound set.
.SND	sound file	a sound set containing 7 sound envelopes which may be loaded into sound set 1.
.PAD	notepad file	stores all or part of a voice for later use.

Each file type is identified by its unique file extension (eg BACH .MUS is a music file whereas BACH .PAD is a notepad file). It is important that you make sure that you are loading in the correct type of file. For instance, you might want to try a different sound set with a particular tune already entered in TMS. If you happened to load in ROCK .MUS instead of a music file ROCK .SND (the sound set you intended) you would wipe out your meticulously composed tune!

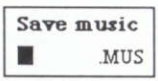
When loading a music file the music, notepad and sound set 1 are all replaced or deleted. Sound set 2 is safe from all file operations and therefore can be used to keep a sound set safe! Use Commands: *Swap sound sets* to move sound set 1 into safe keeping before loading another file for example and swap it back again to use with the new file. Loading a sound set just replaces the current sound set without destroying anything else. A notepad file will only replace the current notepad (if any) when loaded. However since notepads can contain anything from 1 to 999 notes you can only load one if there is sufficient free space available. None of the music parameters such as key signature or time signature are changed when a notepad is loaded.

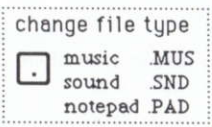
To select a filing option press **f4**.



The *Load* option allows you to search through a data cassette for music, sound or notepad files and to load any particular file you come across. Select *Load* (by highlighting and pressing **ENTER**), press PLAY on your datacorder and answer the pop up questions that appear over the piano keyboard. If you do not find the file you want to load press **ESC** to exit the filing option.

To save a file select the *Save* option. A small pop up appears displaying the type of file to be saved. Press ▪ (full stop) to move through the options.

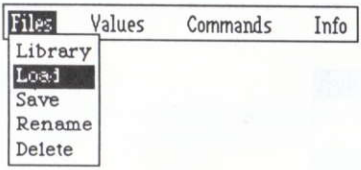




Type in the filename (if different from the current filename) and press **ENTER**. Press RECORD and PLAY on your datacorder and the file will be saved onto your data cassette. Make sure that you use the correct file type. Eg. if you try and save a musical compositon as a sound file (.SND) then the current sound set will be saved and not the MUSIC. **Do not attempt to save any files onto your program cassette. Always use a separate data cassette.**

Cassette filing errors

If your datacorder is kept in good condition and you use good quality cassette tapes you should hopefully not come across too many filing errors. They will most probably occur when attempting to load your most precious musical composition! For this reason, please make backup copies of all your work by saving them twice onto different cassettes. If an error occurs when loading a *Read error* message will appear in the Library window. Press STOP on the datacorder and REWIND the cassette *to the beginning of the file.* Press PLAY again and TMS will attempt to load the whole file again. If this is unsucessful press **ESC** to quit the loading operation, rewind your cassette to well infront of the file and try again. If this doesn't work have a go with your backup! Your Amstrad User Instructions provide a little more information on Read errors and how to avoid them.



The *Library* option allows you to see which files are on the disc. If the window is full up use ↓ and ↑ to scroll the window up and down.

To load a file select the *Load* option. The Library pop up will appear. Move the highlight to the file you want to load and press **ENTER**. The top line of the pop up always shows you what type of file you are loading. Remember that loading a file will wipe out the music already stored in memory.

Saving a file on disc is exactly the same as on cassette except that you will be warned if the file already exists by the 'Replace file' pop up. Press **Y** to overwrite the original file. You cannot write files to the Music System disc. It is write protected. **You must use a formatted data disc.**

To rename a file select the *Rename* option. The Library pop up appears again. Move the highlight to the file you want to rename, press **ENTER** and type in the new name. Press **ENTER** and the file will be renamed. Press **ESC** to quit this option. If the new filename already exists the error pop up 'Can't rename' appears.

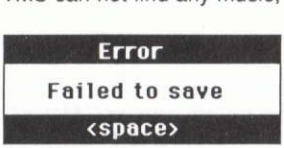
You may *Delete* a file in a similar way.

Disc filing errors

Error messages can appear from time to time. Some of these are reported by AMSDOS, the Amstrad disc operating system (eg Disc error) and the others by TMS (eg File too big).

AMSDOS error trap. Press **C** to cancel. Usually another error pop up will appear providing further details.

TMS can not find any music, sound or notepad files on the disc. Try another disc.



The file has not been saved. Usually due to one of the following:

-disc error	possibly a faulty disc
-disc full	no room to save this file
-can't close file	confusion has set in!
-write protected	the write protect tab is in the *on* position

Check that the disc is not write protected and try again. Failing that try saving to another formatted data disc.

The file has not been loaded. There is not a lot you can do about this except try again. The file may have been corrupted. Try loading from your backup disc.

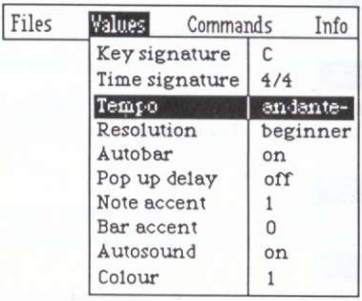
The notepad file you are attempting to load is larger than the free space available. You will need to delete some notes to fit it in. Note that the current notepad is automatically deleted when another notepad is loaded so accessing Commands:*Clear notepad* will not help. It may be a good idea to find the size of this notepad by clearing music and loading. Look at Info for the notepad size.

The Rename option has failed. This is usually because there is a file on the disc with the same name. Choose a different name and try again.

There is a file on the disc with the same name as the one you are attempting to save. Press **Y** to save over the existing file or press **N** and save with a different name.

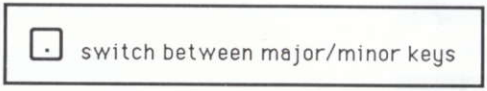
Note that it is always an EXCELLENT idea to keep backup copies of your music data discs. Discs are only mechanical storage devices and can quite unexpectedly fail for no apparent reason. Of course, strong magnets, jam, cigarrette ash, brake fluid and the dog can also prove incompatible with your most cherished compositions on disc! You can use your CP/M utility programs for making backups. **It is also advisable to keep a spare formatted data disc with plenty of room on it just in case your current disc fails when saving the composition you have just spent 5 hours creating!**

Values **f5**



The *Key signature* may be changed at any time even when notes have been entered. This is called transposition. See page 43 for further details. Because of the differences in pitch interval a particular piece of music could quite possibly be transposed into some keys but not others. It is quite possible that particular keys will be missed out and there may be some tunes which cannot be transposed into any other key.

The key signature can be displayed as either a major key or its relative minor key. Press ▪ (full stop) to switch between the two when *Key signature* is highlighted.



The *Time signature* determines where barlines are inserted when recording and entering notes. If it is altered after notes have been entered, the barlines will probably no longer appear in the correct positions. You can always use Commands:*Check barlines* to check.

The *Tempo* can be set between *grave-* (30 beats per minute) and *prestissimo* (188 beats per minute). The metronome device always displays the tempo in the equivalent beats per minute. When starting to record you might find that the tempo resets itself to a lower value. This is because TMS does not allow you to record above certain

tempos for each *Resolution* setting. This should not be a problem since it is usually much easier to record at a slower tempo and speed it up for playback.

The *Resolution* setting is intended to make recording from the piano keyboard easier for beginners. If set to *beginner* the shortest allowable note is a crotchet. Notes will only sound on the beat making it easier to synchronise tracks. With some time signatures eg. 3/8 it is not possible to record in *beginner* mode because each bar is not a whole number of crotchets. The resolution will automatically be reset to *average* . With more exotic time signatures such as 7/16 the resolution will be reset to *advanced* for the same reason.

The *Autobar* facility may be *on* or *off.* If *on* barlines are entered automatically at the end of a voice according to the time signature. TMS will not insert a barline unless the bar can be made the correct duration (which may involve tieing across the barline). If you want to include bars of odd length set to *off.*

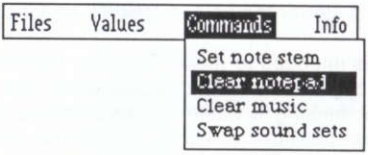
The *Pop up delay* sets the time delay between pressing one of the edit option keys (eg. **A** for accidental) and the menu appearing. If *off* the menu appears immediately.

Note accent sets the accent volume for notes with the **>** dynamic marking. *Bar accent* sets the volume accent for the first note of each bar in every voice. Both these facilities can dramatically improve a musical composition.

When notes are entered on the VMW they will sound if *Autosound* is *on.* It can be turned *off* to make entering music a quicker and quieter task. You can still preview notes with **?** and play them back as usual.

The TMS screen can be displayed in any of 8 different colour combinations to suite your mood or decor! Go through the *Colour* options to find one you like.

Commands **f6**



The flipover point for the note stem may be changed at any time by accessing *Set note stem*. A different flipover point may be set for each voice - these are stored with the music file. This enables purists and real musicians/composers to write bass parts correctly on the bass stave with the note tails pointing in the conventional direction. To set the flipover point set a note to the required pitch and access *Set note stem* . Any new notes entered or edited will flip at the new point. All other notes remain unaffected. You override the flip point by manually flipping the tails using
↑ .

Clear notepad deletes the notepad. You will then have the maximum free space available for your composition. *Clear music* deletes all notes in all voices. Use with care.

Swap sound sets swaps the position of sounds sets 1 and 2. The sound set names will also be swapped. These are displayed in Info. All envelope numbers in the tune now refer to the other sound set. This might change the sound of your tune somewhat! The new set will be saved with your music file. You can, of course, swap the sound sets again and return to using the original sound set 1.

Info **f7**

This option gives information on the number of notes and bars in each voice together with other status information such as file names. Use Info to keep an eye on the notepad size.

Hints and Tips

Transposition

When a piece of music is transposed the music sounds and is written at a different pitch from the original. The simplest form of transposition is by one octave. Individual voices may be easily transposed by changing the octave number in the control device. Increase the octave number to transpose up by one octave. If music is transposed by exactly one octave then the key signature is not changed.

If a piece of music is transposed by more or less than an octave the key signature changes. Each transposition from one key to another will give a different pitch interval between the original and transposed notes. For instance, if transposing from the key of G to the key of C the pitch of each note will decrease by five notes. From C to B the pitch of each note will increase by seven notes.

When TMS transposes a tune it will first try and transpose the notes in the correct direction (either increasing or decreasing the pitch). If this is not possible because there are notes which would go outside the pitch range on the VMW then it tries transposing in the other direction. This is equivalent to transposing and increasing or decreasing the pitch by one octave. If this is not possible for the same reason, that particular key is not available to be transposed to and it will not be shown in Values.

Transposition is very simple if the music contains no accidentals (sharps and flats) because the notes are simply moved up or down the staves to the new positions corresponding to the new key signature. In transposing from G to B flat for instance, every note on a G line will appear on the B line as a B flat. Because of the key signature the B note will not require a flat symbol. However, where a tune contains accidentals, for each accidental in the original there must be a corresponding one in the transposed version. Each of these new accidentals will have the same effect as the corresponding one in the original but it will not necessary be the same accidental since we have to allow for the new key signature.

For example, in the key of B flat a B natural has been raised by one semitone from the given key. If the music is transposed to the key of G (which includes an F sharp) then the note will now be a G but its pitch will have to be raised by one seminote. It therefore becomes a G sharp. The situation can be rather more complicated in transpositions between certain pairs of keys and can give rise to double-sharp and/or double-flat symbols in addition to the normal sharps, flats and naturals. This is in accordance with normal music nomenclature.

Merging music files

The notepad facility allows you to save part or the whole of one voice as a separate notepad file. These files can then be reloaded and either added to an existing composition or used to form the basis of a new piece of music. If you need to add one whole music file on to the end of another try the method below. Because notepad files do not have a key signature you will need to be careful when loading notepad files. Note down the key signature of the tune the file was saved from so that you can set this key signature before reloading into another composition. Of course you can always transpose notepad files on their own by loading, transposing and resaving.

a) Load 2nd music file (note key signature).
b) Move voice 1 to notepad and save as FILE2A .PAD for instance.
c) Repeat for voices 2 and 3, saving as FILE2B .PAD and FILE2C .PAD.
d) Load 1st music file and check that key signature is the same as 2nd file, if not, transpose.
e) Load FILE2A .PAD, go to end of voice 1 and access Commands: *Move from notepad.*
f) Load FILE2B .PAD, go to end of voice 2 and move notepad.
g) Similarly for FILE2C .PAD.

If you have not run out of room by now you will have one music file which may be played and saved as normal.

TMS Development Team

Back in April 1983 Phil Black at Sheffield University finished work on a program for the Acorn BBC B computer called *The Music Editor.* The program was the first music screen editor to be developed for the machine and it allowed music to be written directly onto staves. Other innovations included the defining of sound envelopes within the program, three voices, six different tempos and the ability to write in any key. This program was launched commercially by SYSTEM, the Sheffield based software house. The same month Phil Black joined SYSTEM as a senior programmer.

The requirement for a program that would ease the difficult process of creating and editing envelopes was met by Geoffrey Ellis. The program was marketed by SYSTEM in August 1983 under the name of *The Envelope Generator.*

In October 1983 Adrian Boot from ISLAND LOGIC made contact with SYSTEM to co-develop a project which would create a fully integrated music package. The specification would include an Editor, Envelope generator (now know as the Synthesiser) and Keyboards. The package was to be written entirely in machine code to incorporate a four-voice Editor with many facilities, including automatic transposition, and animation of musical notes as they played.

By January 1984 an enhanced version of the Editor had been fully specified. The over-all specification of the package was revised to include the Linker and Printer modules. Preliminary coding using SYSTEM's ADE (Assembler, Debugger, Editor ROM) began.

In the same month The Music System hit vinyl! SYSTEM's Envelope Generator was used on an album by Jamaica's leading reggae group Black Uhuru (courtesy of Island Logic's sister company, Island Records). The resulting Album, Anthem was released the following July. These early trials at Island's Fallout Shelter Studio provided many ideas for the specification.

February 1984 saw the start of intensive programming both at SYSTEM and ISLAND LOGIC. The Music System Development team was born. Design work on the 'front end' of TMS was underway. An integrated 'user interface' with pop-up/icon graphics was defined and implemented. A Control program was developed to handle each of the separate modules and provided a fully integrated package. In October 1984 *The Music System* was launched for the BBC B micro.

By December 1984 The Music System development team had specified an improved version of TMS for the Commodore 64 micro. It included a complete new module, MIDI, which would allow external keyboard/synthesisers to be used within TMS. All the modules were redesigned to take advantage of the Commodore's superior sound hardware and additional memory.

Most of the work on the pop-up/icon graphics was completed in early February. Prototypes of the EDITOR and MIDI were being tested, and a text Editor was added to the PRINTER module allowing the user to enter and print Lyrics along with music files.

Between March and August 1985 intensive coding, testing and re-coding culminated in the completion of the new enhanced version of TMS for the CBM 64. During this time SYSTEM completed work on a Simplified version of TMS for release on tape. The Music System and The Advanced Music System were launched by Rainbird Software in December 1985.

The original proposal for TMS on the Amstrad was devised by Phil Black and David Ellis in July 1985. In keeping with other TMS developments the proposal took into account the strengths and weaknesses of the hardware and operating system and previous knowledge gained. The whole package was redesigned in a modular way with the Editor, Keyboard and mini-Synthesiser in one single module. Printer and Linker modules were planned to be released together at a later date.

The single screen approach meant that the Editor and Keyboard facilities were completely integrated and all options were instantly available. All design and programming was to take place at SYSTEM. The system design commenced at the beginning of August and the low level graphics, menu and icon routines were soon implemented. The three person coding team started soon after on separate modular code sections which link together to form the complete program. A running version was ready by early November and initial trials at Rainbird followed at the end of the month. Final modifications were made during December ready for launch in February 1986.

SYSTEM is currently working on enhanced Printer and Linker modules for launch early in 1986 and is evaluating the new generation of hardware. The work continues.

Philip Black	Concept . System design . Graphics . Sound . Keyboard . Main . Metronome
David Ellis	Concept . Design . User manual . Illustrations
Bourne Hurst	VMW . Devices . Synthesiser
Steve Swallow	Editor . Command line . Filing . Integration
Mark Taylor	Graphic design

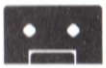
Additional help/support/design/encouragement from:

John Fletcher (Firebird)
Tony Gibson (Rainbird)
David Rodgers
Tony Selinger (Rainbird)
Keith Shaw
Sue Shaw

Song and Sound Library

The Song and Sound Library contains a selection of tunes for your enjoyment. Feel free to experiment with them.....change the tempo, key, volumes, envelopes etc. You can always save them on your own Library disc or cassette (see below). You can save the sound sets from any of the tunes and use the envelopes for your own compositions or modify them with the Synthesiser.

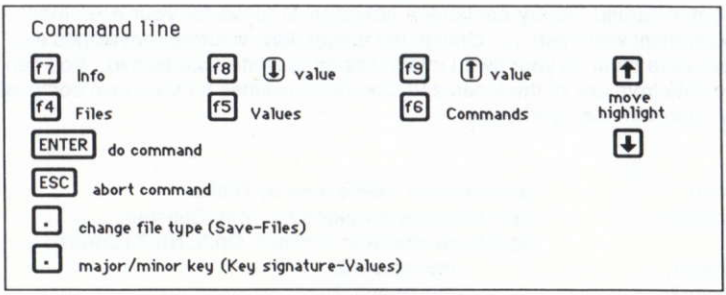
Ghetto	Ghettoblaster theme tune by Gibbo
Hornpipe	Jolly hornpipe arranged by Tony Selinger
	Sonata da chiesa in E minor, Op.3, No.7 (Corelli):
Sonata1	-movement 2
Sonata2	-movement 4
Jigina	A jig arranged by Tony Selinger
Borong	by Robert Hunsu
Blues	A blues in A by Stew Wallphones

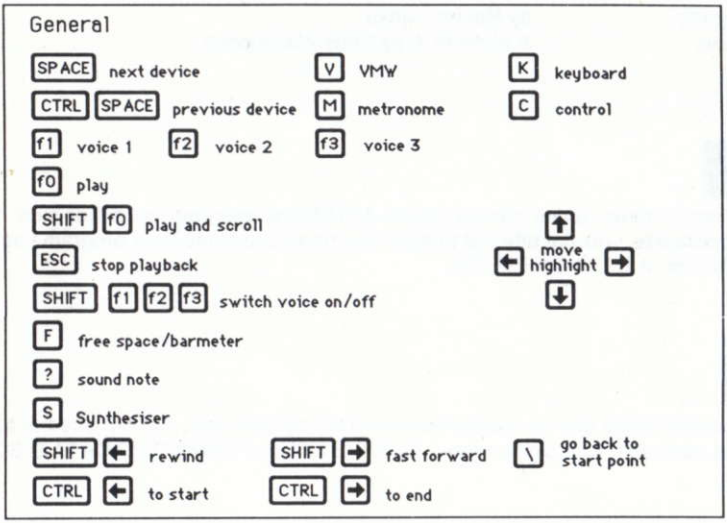


A selection of these tunes can be found AFTER the program on either side of the program cassette. Do not attempt to save the tunes back onto your program cassette. ALWAYS USE A DATA CASSETTE.

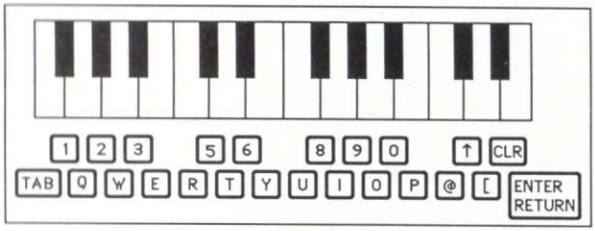
These sample tunes can be loaded from the TMS system disc. Do not attempt to save the tunes back onto your system disc. ALWAYS USE A FORMATTED DATA DISC.

Quick key guide





Keyboard



COPY record
ESC stop recording / kill sound
f8 ↓ pitch
f9 ↑ pitch

Editor

ENTER enter note
+ insert note
, rest (toggle)
← scroll left
DEL delete left
↑ flip stem (toggle)
→ scroll right
− delete right
. dotted note (toggle)

COPY

A ccidental
B arline
D ynamic
E nvelope
N ote
T ie
S ynthesiser
X tra

1 2 3 4 5 6 7 8 9

move to notepad	1
copy to notepad	2
move from notepad	3
copy from notepad	4
delete block	5
check barlines	6

L ocate

Accidental	1
Barline	2
Dynamic	3
Envelope	4
Rest	5
Tie	6

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